XP-002260511

) BIOSIS / BIOSIS
AN - PREV200300265628
AU - Yamazaki V; Nguyen L; Schafer R J; Groves J T; Ulman N
AUAF- Proteomic Systems, Inc., Redwood Shores, CA, USA
CONF- American Society for Microbiology (ASM) Annual Meeting on Infectious Disaease; San Diego, CA, USA; September 27-30, 2002
DT - Meeting, Meeting Poster, Meeting Abstract
LA - English
PCC - 00520, General biology - Symposia, transactions and proceedings
10508, Biophysics - Membrane phenomena
12512, Pathology - Therapy
22002, Pharmacology - General
25502, Development and Embryology - General and descriptive
38502, Chemotherapy - General, methods and metabolism
38504, Chemotherapy - Antibacterial agents
RN - 247145-86-4 (Alexa fluor 594)
AB - Background: With current antibiotic discovery activities and antibiotic use, antibiotic drugs have finite effective lives. As an example, even vanomycin, the glycopeptide "antibiotic of last resort," produces resistant strains of enterococci. The discovery of novel antibiotics is essential. We have investigated the MembraneChipTM to screen arrays of distinct microbial specific membrane targets simultaneously for novel antimicrobial drugs which operate via membrane disruption. Methods: The flat surface of a MembraneChipTM is designed to expose all features of the membrane target array to a single reagent at the same time. Lipid-bilayer corrals were filled with 99% egg phosphatidylcholine (PC, Avanti) with 1% NBD-phosphotidylglycerol (NBD, Avanti) by mole, except for one which contained 98% egg PC, 1% NBD and 1% ganglioside GM1 (Avanti). Then the entire chip was probed with fluorescent-labeled Cholera Toxin subunit B, Alexa Fluor 594 (Molecular Probes) at a concentration of 4mug/mL in phosphate buffered saline. The chip was visualized by fluorescence microscopy. Results: This MembraneChipTM experiment demonstrated the feasibility of using lipid-bilayer membrane arrays for antibiotic discovery, by utilizing the specific binding of the Cholera Toxin B subunits to the fluorescent ganglioside GM1, as an example of detecting a membrane binding/disrupting agent. Conclusions: This experiment demonstrates the MembraneChipTM as a platform for screening lipid targeting antimicrobial agents. MembraneChipsTM can be used to natively display many different microbial specific membrane targets to a large combinatorial peptide library for drug discovery.
AUC - USA
AW - ** Methods and Equipment **
MembraneChip, laboratory equipment; lipid-bilayer membrane array, applied and field techniques
- ** Alternate Indexing **
Bacterial Infections (MeSH)
IW - ** Major Concepts **
Equipment Apparatus Devices and Instruments; Infection; Membranes (Cell Biology) ; Methods and Techniques; Pharmacology
- ** Diseases **
bacterial infection: bacterial disease, drug therapy

- ** Chemicals and Biochemicals **
membrane-disrupting antibacterial agent: antibacterial-drug, antiinfective-drug, phase I clinical trial, screening, development; cholera toxin subunit B: toxin; Alexa fluor 594: toxin, Molecular Probes, reagent

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- 2002
TI - A novel technology for anti-microbial drug discovery.
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